

WHAT IS CLAIMED IS:

1. A magnetic memory comprising:
a first line having a first cross-sectional area;
a second line having a second cross-sectional area different than the first cross-sectional area; and
a magnetic memory cell stack positioned between the first line and the second line.
2. The memory of claim 1, where the first line is defined as a word line.
3. The memory of claim 1, where the first cross-sectional area is greater than the second cross-sectional area.
4. The memory of claim 1, where the first line further comprises:
a first region having a first region cross-sectional area;
a second region located adjacent the magnetic memory cell stack, the second section having a second region cross-sectional area, the second region cross-sectional area being smaller than the first region cross-sectional area.
5. The memory of claim 4, wherein the second region cross-sectional area is substantially similar to the second cross-sectional area.
6. The memory of claim 4, where the first region has a first width and the second region has a second width smaller than the first width.
7. The memory of claim 6, wherein the first region is substantially rectangular shaped, and the second region is substantially rectangular shaped.
8. The memory of claim 1, wherein the first line is substantially T – shaped.

9. A magnetic memory comprising:
a magnetic memory cell stack;
a magnetic memory line for carrying a current, located adjacent the magnetic memory cell stack, the magnetic memory line including a first region with a first width and a second region with a second width smaller than the first width.
10. The magnetic memory of claim 9, wherein the magnetic memory line includes at least a partial outer layer for localizing a magnetic field at the magnetic memory cell stack.
11. The magnetic memory of claim 10, wherein the outer layer is a cladding layer.
12. The magnetic memory of claim 9, wherein the magnetic memory line, including the first section and the second section, is substantially T-shaped.
13. A magnetic memory device, comprising:
a magnetic memory cell stack; and
a write conductor, the write conductor including a first section having a first width and a second section having a second width, where the first width is greater than the second width and the write conductor is next to the magnetic memory cell stack along the second section.
14. The device of claim 13, wherein the magnetic memory cell stack has a memory cell width substantially the same as the second width.
15. The device of claim 13, further comprising means for localizing and focusing a magnetic field produced by a current passed through the write conductor, where the magnetic field is localized around the first section and the second section and focused into the magnetic memory cell stack.

16. The device of claim 13, further comprising cladding around the first section and the second section such that the first section and the second section are continuous and the cladding is not between the second section and the magnetic memory cell stack.

17. The device of claim 13, wherein the first section is rectangular and the second section is rectangular, the first section and the second section positioned to form a T-shape.

18. A magnetic memory cell, comprising:
a first line having a first width and a second width, where the first width is greater than the second width; and
a memory cell stack having a first side adjacent the first line along the second width.

19. The magnetic memory cell of claim 18, further comprising a second line adjacent a second side of the memory cell stack.

20. The magnetic memory cell of claim 19, wherein the second line has a third width and a fourth width, where the third width is greater than the fourth width and the memory cell stack is adjacent the second line along the fourth width.

21. The magnetic memory cell of claim 20, wherein the second width and the fourth width are the same as widths of the memory cell stack.

22. The magnetic memory cell of claim 20, wherein the second width is the same as the fourth width.

23. The magnetic memory cell of claim 20, further comprising means for localizing and focusing magnetic fields produced by currents passed through the first line and the second line, where the magnetic fields are localized around the first line and the second line and focused into the memory cell stack.

24. The magnetic memory cell of claim 20, further comprising cladding around the first line and cladding around the second line, where the cladding is substantially away from between the first line and the memory cell stack and the second line and the memory cell stack.

25. The magnetic memory cell of claim 18, wherein the second width is the same as a width of the memory cell stack.

26. The magnetic memory cell of claim 18, further comprising means for localizing and focusing a magnetic field where the magnetic field is localized around the first line and focused into the memory cell stack.

27. The magnetic memory cell of claim 18, further comprising cladding around the first line and away from between the first line and the memory cell stack.

28. The magnetic memory cell of claim 18, wherein the first line is a T-shaped conductor.

29. A magnetic memory device, comprising:
an array of magnetic memory cells; and
first lines crossing the array of magnetic memory cells, the first lines having a first section and a second section, where the first section is wider than the second section.

30. The magnetic memory device of claim 29, wherein the first section is separated from the array of magnetic memory cells by the second section.
31. The magnetic memory device of claim 29, further comprising means for localizing and focusing a magnetic field, where the magnetic field is localized around each first line and focused into the array of magnetic memory cells.
32. The magnetic memory device of claim 29, wherein the first section of one first line is in substantially the same plane as the first section of an adjacent first line.
33. The magnetic memory device of claim 29, wherein the first section has a rectangular face and the second section has a rectangular face, the rectangular face of the first section and the rectangular face of the second section forming a T shape.
34. The magnetic memory device of claim 29, wherein the first section of one first line is in substantially a different plane than the first section of an adjacent first line.
35. The magnetic memory device of claim 29, further comprising second lines crossing the array of magnetic memory cells.
36. The magnetic memory device of claim 35, wherein the first lines and the second lines are orthogonal.
37. The magnetic memory device of claim 35, wherein the first lines have a T-shaped face and the second lines have a T-shaped face.
38. A method for writing a magnetic memory device including a magnetic memory cell and a first line, comprising:

applying a first write current to a first region and a second region adjacent the first region of the first line to produce a magnetic field around the first line to write the magnetic memory cell.

39. The method of claim 38, further comprising localizing and focusing the magnetic field around the first line and into the magnetic memory cell.

40. The method of claim 38, where the magnetic memory device includes a second line, further comprising:

applying a second write current to the second line to produce a magnetic field in the magnetic memory cell, where the first write current is substantially larger than the second write current.

41. The method of claim 38, where the magnetic memory device includes a second line, further comprising:

applying a second write current to a second line first section and a second line second section to produce a magnetic field around the second line to cooperate with the magnetic field around the first line to write the magnetic memory cell.

42. The method of claim 41, further comprising localizing the magnetic fields around the first line and the second line and focusing the magnetic fields into the magnetic memory cell.